UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

NO. 2004-CR-10194RCL

UNITED STATES

V.

ANTHONY BUCCI

MOTION TO AMEND ORDER OF RELEASE

Now comes Anthony Bucci, in the above-numbered indictment, and requests that the Court consider amending its Order of Release from custody of his mother, Rosemary Keefe, at 500 Salem Street, Apartment 67, Medford, Massachusetts, to Melissa Bucci, at 6 Maple Road, North Reading, Massachusetts.

In support thereof, the Defendant, although agreeable and appreciative of the Court's Order, asks for this amendment so that he can be home with his wife and two (2) year-old son, as well as the fact that a second phone line has been obtained at this address (978) 664-0532. The Defendant also requests that he be allowed to visit a house he has under construction at 26 Upland Road, Wakefield, Massachusetts on Mondays, Wednesdays and Fridays from eight (8) A.M. to four (4) P.M.

In further support, the Defendant refers the Court to the attached report prepared by voice analysis experts Doctor Harold Cheyne, Robert Berkovitz and Jens Jorgenson of Sensimetrics. The report concludes that the voice on the various recordings identified as "Gino" is *not* the Defendant, Anthony Bucci, as the Government maintains. This is

obviously very damaging to the Governement's case, leaving only the testimony of Mr. Minotti, who for the purposes of this motion can be described as unreliable.

This new evidence creates a change in circumstances that warrants amendment of the Court's Order of Release. Mr. Bucci has always had a great interest in defending himself against these charges. His interest is all the greater now that it turns out that a key portion of the Government's evidence is useless. It is also in the interests of fundamental fairness that Mr. Bucci be allowed to live with his wife and child, given the weakness of the Government's case.

For the reasons stated above, the Defendant respectfully requests that this Court amend its Order of Release in the manner described above.

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Date:

Respectfully submitted,
FOR THE DEFENDANT,

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Dated:

REPORT OF ANALYSIS OF RECORDINGS PROVIDED BY ANTHONY BUCCI

A. Purpose of the analysis

Recordings and transcripts were provided to Sensimetrics Corporation by Anthony Bucci, who requested that we determine, to the degree that is scientifically possible, the likelihood that the individuals designated in the transcripts as GINO and BUCCI are the same. The recordings were copies of files from CDs provided to Bucci by government agencies. We converted the files to computer-readable format and analyzed the properties of the voices of GINO and BUCCI by objective measurement.

The two recordings compared were:

1. Conversation between GINO and RUIZ 4 min 30 sec
   from file *"978-210-6642 Sprint 2003-12-24 15-37-29 00581.wav"*
2. Message from BUCCI retrieved by MINOTTI 2 min 33 sec
   from file *"617-908-0299 Nextel 2004-03-04 17-29-37 00190.wav"*

Objective measurements of the two recordings, described in detail below, indicate that talkers GINO and BUCCI are not the same individuals. Although linguistic similarities are obvious when listening to the two recordings, objective analysis supports the subjective impression that different talkers produced the speech of GINO and BUCCI.

B. Analysis of speech recordings in general

No perfectly reliable method of identification of randomly chosen persons exists. Fingerprint- and DNA-based identifications are used because as a practical matter, mistakes in identification, while possible with these methods, are improbable. These systems of identification cannot be perfect because there are more people than differences in the present classification of fingerprint or DNA properties.

This is true of speech to a much greater degree. As a result, the widely disseminated idea of "voiceprints," reinforced by futuristic movies and amateurs, has no scientific validity. While it is true that "voiceprints" (technically known as *speech spectrograms*) can display the difference between the voices of, say, Sylvester Stallone and Britney Spears convincingly, it is unlikely that their voices would be confused without laboratory analysis. Voices that are similar create the greatest forensic difficulties; it is here that problems well known to speech scientists arise.

Speech characteristics are determined by the physical properties of the vocal tract (tongue, jaw, nose, throat, etc.), which are primarily genetic, and learned speech characteristics, which are cultural. Groups of individuals with similar genetic backgrounds, raised in the same culture, are common in the United States. To make matters even more difficult, an accurate descriptive database of regional American speech does not exist, so that it is difficult to estimate the rarity of specific speech characteristics, as is commonly done for DNA analysis.

Although these issues make identification of an individual from speech recordings so difficult that the procedure is largely unacceptable to the scientific community, other reasons prevent

investigators from making absolute judgments that individuals speaking in several recordings are different people. The main reason for this uncertainty is the ease with which a talker can change speech patterns deliberately to avoid detection. This does not require that the person have any special skill at changing his speech, as some entertainers do; an individual's speech normally varies with the time of day, illness or fatigue, and with certain psychological relations between the talker and the person being addressed.

C. Tests performed

Five properties of the speech of BUCCI and GINO were considered to determine whether their characteristics were very close, indicating that BUCCI and GINO could be the same individual, or whether they were so different as to make it unlikely that the same person made the recordings.

The following properties were examined.

1. Nasality

GINO's voice had a distinctly nasal attribute when compared to BUCCI's speech. The degree of nasality, although noticeable, was comparable to normal speech of other individuals with an audible nasal component. BUCCI lacked this pronounced nasal property.

2. Language usage

When listening to the recordings, linguistic similarities are evident in the two talkers. In addition, both talkers frequently insert the words "you know" into their speech. This allowed a detailed comparison of the 24 examples of this utterance. GINO interjected the expression "you know" 11 times during his recording, about once in every 24 seconds; BUCCI used the same expression 13 times, or about once every 12 seconds. As the use of this expression is common in American speech, it does not in itself serve to identify the talkers.

3. Formant frequencies

We conducted several tests to determine whether or not GINO and BUCCI uttered the expression "you know" in the same way. The first test analyzed the formant trajectories for both talkers in the 24 instances of "you know." The trajectories did not match (see Figure 1). We next measured the durations of "you" and "know" and the total duration of the expression in all 24 instances; the durations were similar for "you" but dissimilar for "know," and therefore different for the entire expression.

4. Pitch

Generally, the pitch of GINO's voice is substantially higher than that of BUCCI. GINO's voice pitch is generally higher than the typical value of pitch for an American male talker, often by 50-100%; BUCCI's pitch remains in the usual range almost all the time.

5. Variability

GINO's voice showed considerable variability, a property not evident in BUCCI's speech, which was relatively uniform in its properties (see Figure 1).

For Sensimetrics Corporation:

Harold Cheyne, Ph.D.
Robert Berkovitz
Jens Jorgensen

September 28, 2004

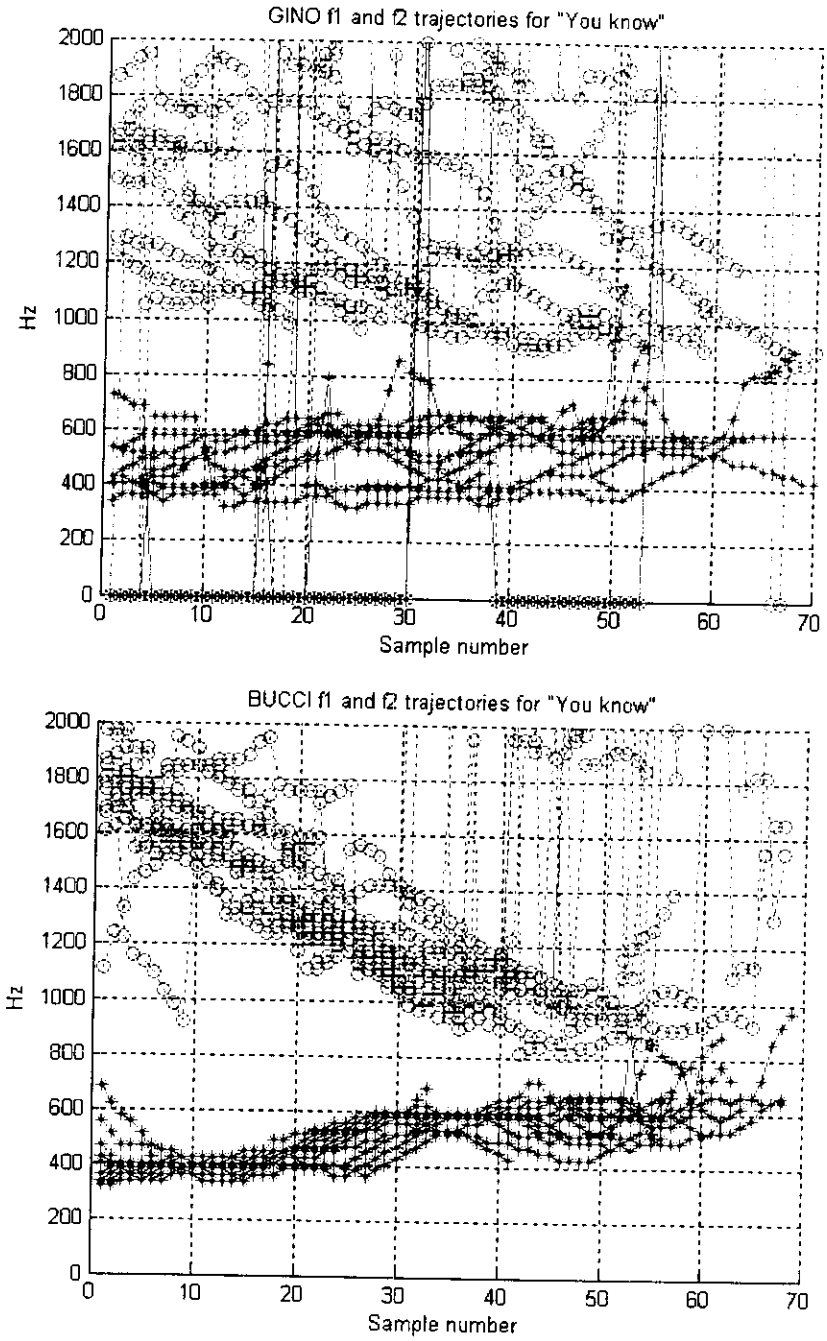

Figure 1. (*Top*) Formant trajectories of GINO saying "you know" 11 times. (*Bottom*) Formant trajectories of BUCCI saying "you know" 13 times.
Formant tracks show the results of tongue and jaw movements during speech. These movements are quite consistent in the case of BUCCI. This is shown by the fact that the tracks follow paths that are close to each other. When GINO speaks (*above*) the tracks are comparatively unpredictable and inconsistent.